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NEW YORK CITY POLICE DEPARTMENT AUTOMATED FUEL MONITORING SYSTE--ETC(U)
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NUSC Technical Report 6567-I
1 October 1981

New York City Police Department Automated Fuel Monitoring System Volume 1--Overview

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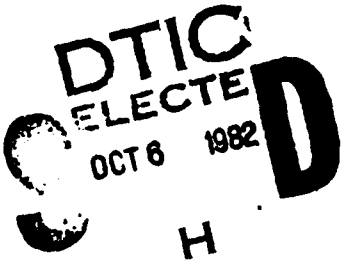

Naval Underwater Systems Center
Newport, Rhode Island / New London, Connecticut

PREFACE

The Naval Underwater Systems Center's mission is to be the Navy's principal research, development, and test and evaluation center for submarine warfare and submarine weapon systems. The project described in this report is part of an ancillary Center program called Technology Transfer. It represents a small part of the Center's overall program in terms of effort and budget, but is significant in terms of returning the benefits of Federal research and development to the public and private sectors.

The project was jointly sponsored by the Naval Underwater Systems Center, the National Science Foundation, and the New York City Police Department. It was conducted under NUSC Projects A90614 and B90614, NSF Grant ISP 7419143 (GT 43500), and NYCPD Contracts 0159000008, 0151P00419, and 0151005000; Principal Investigator, Mr. William J. McGrath (Code 001); Program Manager, Mr. Michael C. Ahrens (Code 0702).

The Technical Reviewer for this report was Mr. Robert J. Donovan (Code 07), Program and Financial Manager.

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the National Science Foundation.

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ABSTRACT

This report briefly describes the New York City Police Department (NYCPD) Automated Fuel Monitoring System from the original study, through system design, to implementation. The system provides complete control of fuel usage for an agency with 4,000 motor vehicles and 25,000 vehicle operators. As far as is known, it is the largest system of its kind installed to date. The system can be scaled up or down to meet the needs of other governmental units. Estimated annual cost savings to NYCPD are $2,000,000.

This report is the first of two volumes. Volume II is a complete documentation of the project. Copies of either volume can be obtained on request from:

Office of Special Programs Development (Code 0702)

U.S. Naval Underwater Systems Center

New London Laboratory

New London, CT, 06320

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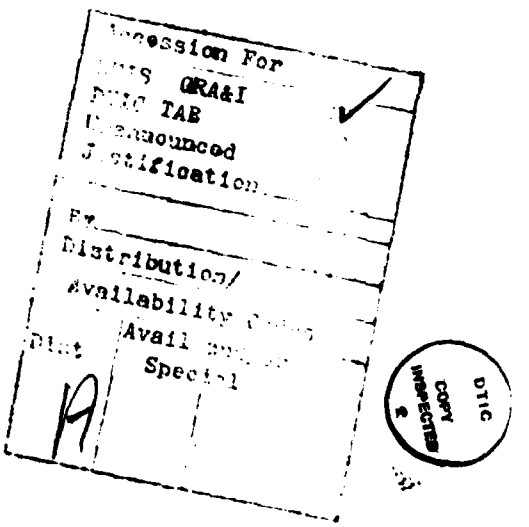
Interested state and local government officials are encouraged to inspect the NYCPD system.



FOREWORD

The Naval Underwater Systems Center (NUSC) has expertise in a broad range of technologies, including acoustics, electronics, ocean engineering, computer services, technical management, and systems development. Since 1970 it has been the Center's policy to share its technology with other Federal agencies and state and local governments. This sharing of resources, called Technology Transfer, became an article of Navy policy in 1972. Technology transfer now is a nationwide program for bringing the benefits of Federal technological research and development to the public and private sectors. It is an organized and systematic effort to help overcome problems that will yield to technological solutions.

The Congress of the United States has recognized the value of the technology transfer effort and has indicated its approval by passage, in late 1980, of the Stevenson-Wydler Technology Innovation Act, now Public Law 96-480. Section 11 of the Law directs the Federal Government to "strive where appropriate to transfer federally owned or originated technology to State and local governments and to the private sector."

NUSC's participation in technology transfer began in 1970 and has grown steadily, within the constraints that apply to the Navy's program: it cannot interfere with the Center's mission nor compete with private enterprise. The Center is now involved in technology transfer activities at the local, state, regional, and national levels. NUSC's Office of Special Programs Development is responsible for managing the program, which matches the network of resources with the users of technology to deliver technical assistance where it is most needed.

NUSC is a member of the Federal Laboratory Consortium for Technology Transfer, which includes about 200 Federal research and development laboratories and technical centers. The Consortium, in turn, is a participant in a program initiated in 1967 within the National Science Foundation's Division of Intergovernmental and Public Service Science and Technology. Since its inception, the Foundation's program has pioneered in the formation of a network of technology transfer users--state, local, and regional governments--and has helped the members of the network to recognize their technology needs, to define their problems, to seek assistance from resources available through the network, and to share the benefits of the problems they have thus solved.

The Automated Fuel Monitoring System designed and implemented for the New York City Police Department is a major project of NUSC's Technology Transfer program. This Overview of the project (TR 6567-I) is presented as a response to the spirit and intent of the nationwide technology transfer effort. The project is transferable to state, regional, and local governments. It can be, and has been, scaled up or down to meet the requirements of a broad spectrum of users. We believe it answers many questions that may be posed by potential users in terms of productivity, cost/benefit analysis, use of natural resources, and vehicle fleet use and maintenance, and that it can advance state and local governments well along the way toward solving troublesome problems. In addition, the private sector market has been stimulated to respond to system needs identified during the course of the project.

ACKNOWLEDGMENTS

Many individuals and organizations contributed generously of their time and expertise to the successful completion of this project. Management and staff of the Naval Underwater Systems Center and the New York City Police Department participated in all phases of the project, from problem definition through system design and implementation, by providing data, technical assistance and advice, graphics, and other essentials. While it was part of their responsibility, we hereby acknowledge with thanks their efforts "above and beyond the call of duty." Gratitude is deserved also by the following for their special contributions:

The cosponsorship of the project by the National Science Foundation's Division of Intergovernmental and Public Service Science and Technology was made possible by the support of Mr. Bruce J. Reiss, Program Manager for Local Governments. He provided the initial funding to the New York City Police Department, which led to the start of this project. The NSF Local Governments Program also sponsors the Urban Technology System, which provides funding for technology agents in a number of medium-sized cities (50,000 to 500,000 population) around the country. An Urban Technology System Brief led to the identification of fuel monitoring as a primary need by NYCPD.

The Federal Laboratory Consortium member laboratories, through their technology transfer representatives, provided technical advice when requested, and gave encouragement throughout the project. Mr. Nicholas Montanarelli, when he was program manager for Federal Laboratories at the National Science Foundation, provided funding for documentation of this project.

Deputy Inspector Kenneth R. Strange, Support Services Bureau, and Mr. Eugene C. Masci, director of the Motor Transport Division, New York City Police Department, steered the operation through the many administrative procedures and retained their equanimity and enthusiasm throughout. The dedication and perseverance of Sergeant Frank E. Stryjewski, the first User Representative, and Sergeant Thomas A. Kiernan and Police Officer Kenneth A. Hamel of the Fuel Control Center were the building blocks that finally put the system together.

New York City Police Department Automated Fuel Monitoring System Overview

BACKGROUND

Mr. William J. McGrath, a management systems analyst from the Naval Underwater Systems Center's (NUSC) New London Laboratory, was assigned on May 1, 1977, to the New York City Police Department's (NYCPD) Motor Transport Division under the mobility provisions of the Intergovernmental Personnel Act of 1970. Mr. McGrath's assignment to the Motor Transport Division was made specifically to investigate the advantages of adding vehicle maintenance to an already existing Asset Management System he had designed and implemented for the NYCPD Quartermaster.

During the first week of the project, Mr. McGrath was primarily concerned with assisting NYCPD Motor Transport Division in identifying their technical problems. He reviewed available literature on successful automotive-related technology transfer programs and presented a number of brief technical writeups to NYCPD officials.

Within two weeks of the beginning of the project, the head of NYCPD Motor Transport Division identified fuel dispensing and monitoring as the first-priority technical problem. He asked Mr. McGrath to study their existing system and make recommendations for improving it.

There are two essential requirements of any systems analysis task. The first is that a **full-time user representative** be assigned to work with an independent analyst beginning on Day One of a project. It is particularly important in intergovernmental projects, since the provider of the service usually is unfamiliar with the governmental unit to which he/she has been assigned. The second requirement is to **define the problem** before attempting to arrive at a solution or alternative solutions.

Mr. McGrath strongly recommended the assignment of a user representative and, accordingly, a sergeant assigned to the NYCPD Motor Transport Division was designated as such on May 1. His participation was important to the short time-frame of the problem identification phase of the project. The study, briefly described here, meets the second systems analysis task requirement of specific problem definition.

STUDY

The following information is essential to provide a conceptual understanding of the complexity of the NYCPD fueling operation:

1. The Department is divided into 73 Precincts, within the 5 Boroughs of New York City (Bronx, Brooklyn, Manhattan, Queens, Staten Island). Sixty-eight precincts have pumping stations.

2. Any Department vehicle can secure fuel at any of the 68 stations.

3. Some stations have two gas pumps, some only one.

4. The capacity of the in-ground tanks varies from 550 to 3600 gallons.

5. The Department has approximately 25,000 qualified motor vehicle operators.

6. The Department operates about 4,000 motor vehicles, including motorcycles and scooters.

7. Private vehicle fueling is provided for personnel on special detail.

8. The number of transfers of personnel between Precincts is significant.

Existing Fuel System (May 1977)

The first step in the study was the preparation of a flowchart of the existing manual fuel control system. Exhaustive interviews were held with all personnel involved in dispensing, receiving, and paying for Department fuel. All physical steps and paper flow were checked, along with Department directives. Comparisons were made between the directives and actual procedures.

It was determined that:

1. All transactions (dispensing and receiving) were manually recorded in a Gasoline and Oil Receipt Book by the pump attendant and were signed by the Department vehicle operator.

2. The manual system required the services of a full-time pump attendant for at least two of the three daily duty shifts.

3. Each Precinct was responsible for reordering its own fuel from the vendor.

Data Collection

Data were collected for 1 month (January 1977). A fuel dispensing questionnaire was developed and forwarded to all fuel precincts. A fuel matrix was designed, and data were gathered on manpower distribution and labor costs from the questionnaires and gasoline receipt books and were posted to the matrix. Approximately 32,000 transactions were physically checked.

Mr. McGrath and the Quartermaster and the user representative from NYCPD inspected currently operating automated fueling systems in Cincinnati, Ohio, and Oklahoma City, Oklahoma. The physical inspection was useful for concept and comparison purposes.

Study Findings

A number of recording errors were noted, and the following major system problems were identified:

1. Lack of system capability to correlate deliveries and dispensing on both a continuing and demand basis for control and/or audit purposes

2. No final accounting, control, or overall managerial responsibility of total fuel dispensing system

3. No systematic ordering procedure or delivery scheduling

4. No statistical data on fuel consumption for various classes and types of vehicles available.

It was determined that a total of 157 individuals were required for the gas dispensing process, for the equivalent of a total of 73.6 man-years used in the actual process of pumping fuel. In 1977 dollars, it was estimated that the labor cost per gallon dispensed was 19 cents, though the cost actually was somewhat higher since unaccelerated salary figures were used for the study. The projected annual labor cost was over 1 million dollars.

Proposed Automated Fuel System

In a report to NYCPD management, the following system options were presented:

1. Upgrade and Reinforce Current System ... Not Recommended

2. Keypunch from Source Documents ... Not Recommended

3. Automated On-Line Fuel Monitoring and Dispensing... **Recommended.**

A flowchart of a proposed automated on-line fuel system and cost comparisons among the three options were provided. It was determined that the cost per gallon dispensed for options 1 and 2 would remain essentially the same. The cost for option 3 (automated on-line system) was projected to be 1 cent per gallon dispensed.

The cost of installation for the on-line system initially was estimated to be approximately $500,000, which would reduce the labor cost of dispensing fuel from 19 to 7 cents per gallon for that year. The ensuing annual operating cost was estimated to be $115,500, including salaries of Fuel Control personnel, with a cost per gallon dispensed of 1.5 cents. Please note that these are estimates in 1977 dollars. The actual cost of the system in current dollars will be discussed later in this Overview. All costs have escalated, and the number of personnel required to operate the system has increased. However, as will be seen, the savings are considerable.

Pilot Project

One week after the results of the study were presented to NYCPD Management, they decided to proceed with the design and installation of the recommended automated fuel monitoring system. The optimum design

would use a minicomputer housed at Motor Transport Division to activate the pumps and perform validity checks, with the bulk of the data being passed to a central computer at Police Headquarters in the Management Information Systems Division (MISD). However, MISD rejected that plan from the outset, because they did not have enough manpower to support an additional activity of this size and scope.

About this time the New York City Mayor's Office of Operations became interested in the project, with a view toward eventually installing an automated fuel system citywide. The Office of Operations offered to furnish host computer capability for the total system, but suggested a pilot installation for proof of concept. NYCPD decided to carry out the pilot project in the three precincts on Staten Island, all of which have pumping stations. The reason for using Staten Island as a test site is worth mentioning: the island has finite boundaries and is remote from the other four boroughs; therefore, there is very little crossover of police officers from other districts into Staten Island. This eliminated the problem of officers from the other 65 precincts having difficulty getting fuel, because they did not have the necessary magnetic-stripe cards to activate the pilot study system.

NYCPD Management had given careful consideration to the decision to proceed with the installation of an automated fueling system. They, therefore, determined to go ahead with the suggested pilot system, but only for approximately 4 months. Specifications for the total system were to be prepared and bids let during that period. The pilot, in essence, was to provide the necessary time for NYCPD to interface with the Mayor's Office of Operations and to explore the use of the host computer.

The bid on the pilot system was won by American Energy Management Systems, and the three Staten Island precincts were automated on October 30, 1978. It worked well and was well accepted by the users. Eventually, the equipment became inefficient and the supply of actuator cards ran out because the pilot study ran for a much longer period than intended and there were no funds in the contract for replacement parts and cards.

SYSTEM DESIGN

The original design for the NYCPD automated fuel monitoring system was prepared presuming the use of an IBM 370 host computer residing in the Mayor's Office of Operations. For that reason, a great deal of time in writing the Request for Proposal was given to defining the reporting requirements for the system. It was intended that a minicomputer in the NYCPD Motor Transport Division Control Center would perform validity checks and activate the pumps, and also would provide the capability to update the files in the host computer. These data would be passed daily to the IBM 370, and the 370 would provide the reporting capability necessary for complete fleet maintenance and budgetary cost control. Any report would be a maximum of 1 day old.

Subsequently, the Mayor's Office of Operations decided to proceed with the design of an all-encompassing citywide fuel system. Much of the design

was to be similar to the NYCPD system, but it would be expanded to a massive interdepartmental effort that would include a diversity of equipment and management practices. The time lag for the design and implementation of a citywide system would be long and costly. NYCPD already had its design and was ready to go ahead with implementation, with assistance from the NUSC management systems analyst and funding from the National Science Foundation. To avoid further delay in implementation of a much-needed system, NYCPD decided to proceed while still using the City's IBM 370 computer. Later, after the contract for the Departmentwide system had been awarded, the 370 was determined to be unavailable because of programming priorities, and the system had to be reprogrammed to "stand alone." It is hoped that New York City eventually will adopt the original system designed for NYCPD, which included fleet maintenance reporting. In such an event, reprogramming the NYCPD system will be expensive, but the long-term benefits will be highly cost effective. It is advisable for state and local governments considering installation of a fuel management system to plan for total fleet management from the outset.

System Specifications

Specifications were prepared for the total system, and the system was advertised for bid by prospective vendors. The first two bid openings were nullified because of exceptions by the vendors. After the third bid opening, the contract was awarded, in December 1979, to E. J. Ward, Inc., of San Antonio, Texas. Because of the loss of availability of the host computer, change orders had to be written to make the NYCPD system stand alone.

Copies of the specifications and change orders for the NYCPD system are included as an appendix to Volume II, the system Documentation Report.

System Configuration

A schematic diagram of the New York City Police Department On-Line Fuel Monitoring System is provided at the end of this report. The system incorporates the following equipment:

1. An IBM Series 1 Computer. The Series 1 collects and stores all the data generated by the system and provides output for the other system components on command. Data are stored on hard disks and are written off to diskettes. One diskette holds approximately 1 week's data.

2. Sixty-eight Remote Terminals, one in each of the 68 pumping stations/precincts. The remote terminals activate the pumps and feed data to the Series 1, where it is stored on diskettes.

3. Two Model 43 Teleprinters designated "KSR" (Keyboard Send-Receive). One KSR, designated "KSR Log," logs transactions which come in from the remote terminals. The other KSR, designated "KSR Control," is used (a) to tell the Series 1 what to log and not log on the "KSR Log," (b) to update the operator, vehicle, and tank pump files, and (c) to receive all exception/error conditions.

4. One Printer. Prints system reports on command of the operator of the "KSR Control."

5. Two Black and White Terminals, designated "CRT." One CRT is in the office of the director of NYCPD Motor Transport Division, the other in the Fuel Monitoring System Office (Control Center). They are used for status inquiry into the system.

6. One Color Data Terminal, designated "C-CRT." The color CRT is in the Control Center, and is used to monitor the system.

7. Ten Dedicated Telephone Lines. The dedicated phone lines are necessary to the operation of an on-line system. On-line operation was chosen because the remote terminals could not store enough data for a dial-up system.

Cards

NYCPD elected a two-card system that would identify both the operator and the vehicle, thereby providing better management control. Because they are more difficult to duplicate, magnetic-stripe cards of the standard credit card variety were selected over coded punched cards. Both types of cards were submitted to extensive testing by NYCPD.

Reports

The current NYCPD system provides 50 management-type reports; a list is in Volume II, the Documentation Report. The original system design incorporated a report capability that would have provided complete fleet maintenance data. A configuration of the original system and its more extensive report capability is in an appendix to Volume II.

SYSTEM IMPLEMENTATION

Implementation of the automated fuel monitoring system involved the following procedures:

1. Building the three files: Operator, Vehicle, and Tank/Pump

2. Coordination and installation of the remote terminals and telephone lines

3. Selection of operating personnel for the Control Center

4. Revision of departmental procedures

5. Development of testing and system backup procedures

6. Training

7. Issuing Cards

8. Phased implementation. The size of the system clearly indicated going operational in stages; therefore, it was phased-in Borough-by-Borough according to a predetermined schedule.

All these procedures are discussed in detail in the Documentation Report, Volume II. However, **training** is worth additional mention in this Overview, since it substantially contributed to the overall success of the project, both in terms of the implementation and of **acceptance of the system by NYCPD personnel.**

Training

Three groups of individuals were trained in operation of the system:

1. Users in the field

2. Operating personnel in the Control Center

3. Equipment repair personnel.

A document was prepared to introduce the system to Department Management. Presentations were made to groups of Chiefs, Borough Commanders, and Captains to explain the study, the problems noted, and the benefits of an automated fuel system. The presentations eliminated surprises at the management level.

- A training film was prepared by the Police Academy and shown to all Department members sometime prior to, and immediately before, going operational.

- A fueling instruction sheet was developed and given to all Department members.

- A test terminal in the Control Center provided a mechanism for training a number of personnel in the use of the actuator cards. These personnel, in turn, were able to instruct other members in their precincts. The test terminal also was useful in training repair personnel in testing terminals and replacing components.

- On the day each fueling station became operational, officers familiar with the operation of the system were sent to the precinct to assist personnel with first-time use.

A description of the development of the training aids, and examples, are included in the Documentation Report, as are the vendor's Operations Manual and Fuel System Service Guide.

The personnel in the Control Center were extremely important to the overall success of the operation. The NYCPD Control Center operates 7 days a week, 24 hours a day. It is staffed by a combination of uniformed and civilian personnel, but more important than the mix is the team's competence. Personnel were selected in advance of equipment installation; in fact, several were assigned to the project from conception, through planning and data entry, to implementation. The pilot installation provided these personnel with the opportunity to become knowledgeable in the operation of an automated fueling system while it was still a small operation (three pumping stations on Staten Island). They learned to deal with the problems and inadequacies of the pilot, and were able to contribute to the development of the total system specifications. The extensive training resulting from their early involvement was essential. In addition, these Control Center personnel were familiar with the Department structure and user needs.

It may not be necessary that Control Center personnel have previous experience in data processing; however, it is desirable (and worked well in

this case) that they be interested in the project and the professional challenge that it presents. It also is useful for the user project leader to have some input into the selection of other personnel in the Control Center.

It would be hard to overemphasize the need for competent personnel in sufficient numbers for data gathering and checking and for prompt response to inquiries and maintenance requirements. Competent personnel in sufficient numbers can make the transition to an automated fuel monitoring system both possible and relatively painless.

COSTS AND BENEFITS

The cost figures given in the Documentation Report were estimates in 1977 dollars, based on the best available information at the time of the study (mid-1977). Projected savings were calculated on the basis of labor only, since those figures are easily auditable. All costs have escalated since that time--capital costs for system installation, labor, telephone line rental, and fuel. However, based on the 1977 estimates, NYCPD Management made the decision that an automated fuel system would be cost effective. The system is even more cost effective now, as reflected in the following figures compiled by NYCPD as of July 1981, with slightly over one-half of the fueling sites fully automated:

Startup and Capital Costs: (includes labor, training, telephone line installation, and rental)	$1,082.386	
Annual Operating Costs: (includes labor, system maintenance, telephone line rental)		$638,858
Estimated Savings Upon Completion: (represents labor-- uniformed and civilian personnel)		$2,624,000
Net Annual Benefits:		$1,985,142
Payback Time of Startup and Capital Costs:		**Under 1 Year**

The foregoing projected cost savings are a benefit in terms of labor dollars saved, and are auditable. Uniformed and civilian personnel represented by the figures have been reassigned to other essential duties.

Other benefits are less quantifiable, but merit discussion here:

1. Central control of fuel ordering and dispensing scheduling ensures fewer sites out-of-fuel and for shorter periods.

2. Because of 1, there is less out-of-precinct travel, since personnel do not have to go from site to site looking for gas.

3. NYCPD has control of the total fuel operation, both for management and accounting purposes.

In its present form the system produces 50 management reports. However, the optimum configuration would be a system as originally designed; the reporting capabilities of such a system would provide for complete fleet maintenance and management.

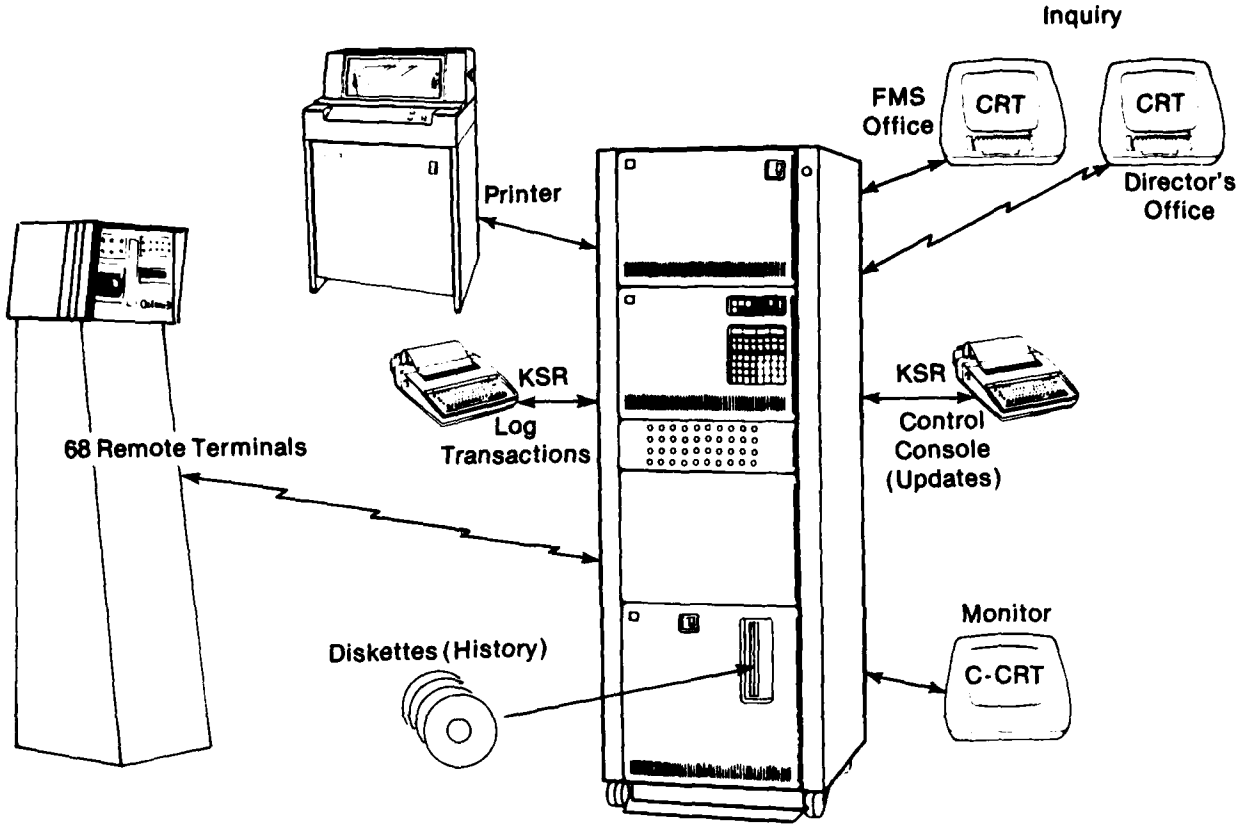
CONCLUSION

The foregoing is a brief overview of the New York City Police Department Automated Fuel Monitoring System. The Documentation Report (TR 6567-II) prepared by the Naval Underwater Systems Center contains a complete description of the methods and procedures used to bring this project to a successful completion.

This project was begun in May 1977, and the system became fully operational in September 1981. There are many reasons for the long time lag, the most important of which are (1) as far as is known, this is the largest system of its kind attempted to date and (2) many bureaus of the City of New York had to be involved in various aspects of the design and installation of the system.

The groundwork has been done by personnel of the Naval Underwater Systems Center and the New York City Police Department, and their experience is available for transfer to other governmental units. Any question that the Documentation Report does not address can be directed to either NUSC or NYCPD. **In most cases, the NYCPD fuel monitoring system can be modified to meet the needs of other potential users.**

New York City Police Department On-Line Fuel Monitoring System Configuration



New York City Police Department On-Line Fuel Mor

2 Card System

White Card: Operator
Blue Card: Vehicle

Transactions

	Thumb Wheels	Limit
Dispensing	Mileage	Tank Capacity
Delivery	Gallons	Tank Capacity
Inventory	Gallons	Tank Capacity
Oil	Quarts	9 Quarts

Master Cards

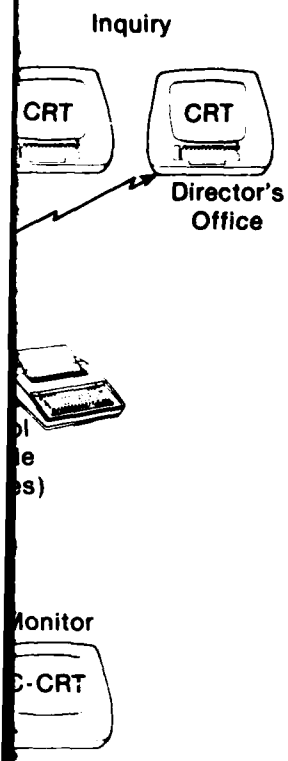
Red Card		
Private Vehicle	4 Digit Soc Sec No	10 Gallons
Green Card		
Lost Vehicle Card	Vehicle ID No	Tank Capacity
Equip With No ID	009999	5 Gallons
Inventory Dip	70 Gallons	Tank Capacity
Delivery	90 Gallons	Tank Capacity
2 Wheel Scooters	009XID	2 Gallons
Motor Cycles	0089ID	5 Gallons

Computer Files

Operator	Vehicle	Tank Pump	Tra
Actuator Card Number	Actuator Card Number	Site ID	00
Social Security Number	Dept Vehicle Number	Site Status	01
Assigned Command	Assigned Command	Tank ID	02
First Initial	Vehicle Class	Tank Status	05
Surname	Fuel Type	Pump ID	10
Status Code - On/Off	Miles Limit	Pump Status	20
Type Code - PVC	Last Odom Reading	Fuel Type	27
Card Sequence Number	Vehicle Tank Capacity	Tank Capacity	30
	Card Sequence Number	Reorder Point	31
		Shutdown Point	41
		Opening Balance (Mid Night)	43
		Number of Deliveries	44
		Terminal Address	45
		Telephone Line Number	46
		(Sense Manual O/Ride)	47
			49
			53

Print Transaction

1. Sequence Number
2. Transaction Type
3. Date & Time
4. Vehicle Command
5. Vehicle Number
6. Odometer Entry
7. Site Number
8. Tank Number
9. Fuel Type
10. Pump Number
11. Gallons Pumped
12. Calculated MPG
13. Vehicle Class
14. Operator Command
15. Operator Soc Sec No



n-Line Fuel Monitoring System Configuration

Tank Pump
er Site ID
r Site Status
Tank ID
Tank Status
Pump ID
Pump Status
Fuel Type
y Tank Capacity
ber Reorder Point
Shutdown Point
Opening Balance (Mid Night)
Number of Deliveries
Terminal Address
Telephone Line Number
(Sense Manual O/Ride)

Transaction Type Codes

00 Vehicle Fueling
01 Low Odometer
02 High Odometer
05 Private Vehicle Fueling
10 Oil Issue
20 Master Card Vehicle Fueling
27 Inground Inventory
30 Manual Entry Vehicle Fueling
31 Console Fuel Receipt
41 Vehicle Add
43 Vehicle Change Status To ON
44 Vehicle Change Status To Off
45 Change Field Vehicle File
46 Change Odometer Vehicle File
47 Reassign Vehicle New Card Number
49 Delete Record From Vehicle File
53 Change Status To Telephone Line On
Change Status To Terminal On
Change Status To Master Card On
Change Status Tank To On
Change Status Pump To On
Change Status PVC Fueling To On
54 Change Status Telephone Line To Off
Change Status Terminal To Off
Change Status Master Card To Off
Change Status Tank To Off
Change Status Pump To Off
Change Status PVC Fueling To Off
55 Change Site Tank N..nber T/P File
Change Fuel Type T/P File
Change Number Times Ordered T/P File
Change Tank Capacity T/P File
Change Shutdown Point T/P File
Change Opening Balance T/P File
Change Reorder Point T/P File
61 Operator Add
63 Change Operator Status To On
64 Change Operator Status To Off
65 Change Operator Soc Sec No
Change Operator Command
Change Operator PVF Status
Change Operator Name
Change Number Cards Issued
67 Reassign Operator New Card Number
69 Delete Operator

No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